**Enhancing Academic Data Insights Through SQL Views AND CTEs**

**1.Create the Students table and insert values into it**

drop table if exists student;

create table student (

student\_id int primary key,

first\_name varchar(50),

last\_name varchar(50),

DOB date,

major varchar(100),

GPA decimal(10,1));

insert into fullstack.student values

(1, "alex", "smith", "2000-01-01", "computer science", 3.5),

(2, "bella", "johnson", "2000-02-02", "business", 3.6),

(3, "charlie", "brown", "2000-03-03", "physics", 3.7),

(4, "diana", "davis", "2000-04-04", "mathematics", 3.8),

(5, "ethan", "miller", "2000-05-05", "biology", 3.9);

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**2.Create the Courses table and insert values into it**

drop table if exists course;

create table course (

course\_id int primary key,

course\_name varchar(50),

department varchar(50));

insert into fullstack.course values

(101, "intro to cs", "computer science"),

(102, "microeconomics", "economics"),

(103, "general physics", "physics"),

(104, "calculus 1", "mathematics"),

(105, "biology 101", "biology");

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**3.Create the Instructors table and insert values into it**

create table instructors(

instructor\_id int primary key,

instructor\_name varchar(50),

department varchar(50));

insert into fullstack.instructors values

(201, "Dr.adams", "computer science"),

(202, "Dr.baker", "economics"),

(203, "Dr.clark", "physics"),

(204, "Dr.davis", "mathematics"),

(205, "Dr.evans", "biology");

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**4. Create the Enrolments table and insert the values into it**

drop table if exists enrolments;

create table enrolments(

enrolment\_id int primary key,

student\_id int,

course\_id int,

semester varchar(50),

grade varchar(10));

insert into enrolments values

(301, 1, 101, "fall 2023", "A"),

(302, 2, 102, "fall 2023", "B"),

(303, 3, 103, "fall 2023", "C"),

(304, 4, 104, "fall 2023", "D"),

(305, 5, 105, "fall 2023", "E");

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**5. Create a view named CourseSummary that shows the total number of students enrolled in each course**

create view coursesummary as

(

select s.student\_id as student\_id,s.first\_name as first\_name,s.last\_name as last\_name,c.course\_name as course\_name

from course c

inner join enrolments e on c.course\_id = e.course\_id

inner join student s on e.student\_id=s.student\_id);

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**Create a view InstructorSchedule**

create view instructorschedule as

(

select i.instructor\_name as instructor\_name, c.course\_name as course\_name, c.department as department

from instructors i

inner join course c on i.department=c.department );

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**Modify CourseSummary**

Create or Replace view fullstack.coursesummary AS

select

distinct e.semester,

c.course\_name,

count(student\_id)as total\_enrolment

from course c

inner join enrolments e on c.course\_id=e.course\_id

group by c.course\_name,e.semester;

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**Update InstructorSchedule**

create or replace view fullstack.instructorschedule as

select

e.semester,

c.course\_name

from enrolments e

inner join course c on e.course\_id=c.course\_id;

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**Create a view EligibleGraduates**

create view eligiblegraduates as

select \*

from student

where GPA >= 3.7;

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**Alter EligibleGraduates**

create or replace view eligiblegraduates as

select GPA

from student;

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**Rename CourseSummary**

create view CourseEnrolmentSummary as

select \*

from coursesummary;

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**Drop EligibleGraduates**

drop view eligiblegraduates;

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**Create a CTE**

with cte as

(

select

e.semester,

c.course\_name

from enrolments e

inner join course c on e.course\_id=c.course\_id)

select \*

from cte;

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